IHRA SIDE IMPACT CONFIRMED MINUTES

16/17 September, 2002 , Munich, Germany

ATTENDANCE:

Keith Seyer	Chairman/ DOTARS
Michiel van Ratingen	TNO Automotive/ EEVC
Richard Lowne	TRL/ EEVC
Joseph Kanianthra	NHTSA Research
Hideki Yonezawa	JMLIT, National Traffic Safety and Environment Laboratory
Minoru Sakurai	JARI
Akihisa Maruyama	JAMA/ Nissan (OICA Asia Pacific)
Edmund Hautmann	BMW Group
Christoph Mueller	Daimler Chrysler (OICA Europe)
Karl Barnsteiner	BMW Group
Dainius Dalmotas	Transport Canada
Suzanne Tylko	Acting Secretary, Transport Canada

1 INTRODUCTIONS

The Chairman thanked Mr Hautmann and BMW for hosting the meeting. As Mr Newland was at the GRRF meeting in Geneva, Ms Tylko kindly volunteered to be Secretary to this meeting. The OICA North American representative, Michael Leigh, was absent.

2 CONFIRMATION OF AGENDA

IHRA Biomechanics report will be presented on day 2 by Rolf Eppinger
ES2 steering committee meeting will be held at 0830hrs on day 2
Defer item 10.2 to next meeting [Transport Canada IIHS MDB/ Megane test results]
Defer item 10.5 to next meeting [EEVC EuroNCAP pole impact data]
Add item 10.6 EEVC advanced MDB Camry test
Move item 11.4 up to 11.1
Add item 11.5 Report to ESV
Other business: Joe Kanianthra to discuss ESV activities

3 CONFIRMATION OF MINUTES

Changes reflected in draft minutes.
EEVC barrier now officially referred to as Advanced European (AE)-MDB.

4 REPORT FROM IHRA STEERING COMMITTEE

NHTSA restructuring discussed, Mr. Kanianthra distributed copies of the new organisational chart.
Traffic Safety Programme is now referred to as the Traffic Injury Control Programme
Research has been split into two divisions

a) Long term research will be handled by Advanced Research and Analysis (Ray Owings) which falls under the division of Policy & Operations. ESV will also be handled in this division.
b) Short term research will be handled by Applied Research (Joe Kanianthra) which falls under the Vehicle Safety Programme. IHRA activities will be handled in this division. John Hinch will continue to be the common link in ESV and IHRA.

5 WORLDSID TASK GROUP REPORT

5.1 Activities

19th meeting held in Yokohama,
20th meeting to be held in Munich Sept 23
Modifications are under way to improve the biofidelity of the shoulder, pelvis, femur & knee:
Shoulder: Additional rib damping has been added with clamps to avoid de-bonding, supplementary padding material and rib stops have also been added. The shoulder load cell has been replaced with a re-designed uniaxial model
Pelvis: Decoupling has been augmented in the pubic area: the 6-axis load cell has been replaced with a uniaxial load cell flexible buffers have been added. Multi-channel measurement capabilities may be retained as an option.
Femur/knee: Mass distribution has been modified. The flesh mass has been increased and the bone mass has been reduced, the DAS unit has been moved from the bone to the flesh. Holes have been added to the knee and femur neck, the knee cap thickness has been reduced. De-coupling of the flesh & bone has been augmented.
Half arm: resurfaced to meet the UMTRI shell. Accelerometers have been removed and the metal bone has been replaced with plastic bone. The shoulder plug has been eliminated.
Pelvis: The pelvis has been resurfaced to prevent belt penetration.
Lower leg/ankle: Reduce size similar to THOR.
Instrumentation: Returned amplifiers to DAS units, traditional sensor and DAS technique, number of DAS units have been reduced from 7 to 5 (3 in spine, 2 in femur flesh), 170 channels.

5.2 WorldSID Testing

SIBER results are presented in TGN 213, full report to be released in September 2002.

TRL Results

- Pendulum tests show that dummy is highly sensitive to location
- Heidelberg sled tests; marked improvement over ES 1 & 2

Round 2 pendulum and body drop tests have been completed at Transport Canada.

5.3 WorldSID Production

Final pre-production design freeze October 9, 2002

Anticipate sale of 12 pre-production dummies: 4 Americas, 3 Europe, 3 Asia
Release of regulation-ready production dummy expected for March 2004

5.4 Regulatory Inclusion

NHTSA Rulemaking priority plan for new regulations including FMVSS No. 214 was published for comments in July: Intent is to achieve an upgrade of FMVSS 214. to include an improved dummy or dummies and revised test procedures. It is anticipated that as WorldSID becomes available and or other test components are defined these can easily be incorporated into any future amendments of the regulation. The group raised the question if fast track implementation of IHRA recommendations would be possible. Mr. Kanianthra suggested that a gradual introduction of the recommendations as they attain general approval would likely be the most efficient approach.

6 REPORT FROM IHRA BIOMECHANICS

On Day 1, Mr. van Ratingen presented a spreadsheet outlining tests currently under consideration by IHRA Biomechanics. The group noted that the original mandate of the IHRA BWG was to report on the dummy and injury criteria recommendations by December 1998.

(Day 2) Rolf Eppinger presented the report that was presented to the steering committee in May of this year. Joe Kanianthra enquired as to when the injury risk corridors would be transmitted to the WorldSID task group. Mr. Eppinger responded that the corridors had already been submitted to the WorldSID Task Group and that these were being used to modify the dummy.

As the IHRA MDB test would require a small female test device, Chairman Seyer: requested that the IHRA BWG recommend an appropriate test device together with the necessary biofidelity corridors for the 5th female. The committee was asked by Mr. Eppinger to submit the request to BWG for appropriate action. **[ACTION: Mr Seyer – done at BWG meeting 20 Sept].**

7 REPORT FROM EEVC WG13

7.1 AE-MDB update

The Advanced European Mobile Deformable Barrier (AE-MDB) is based on Japanese load cell wall data and designed to reproduce the responses observed in moving bullet and target vehicles. Target vehicles were the Renault Megane & Toyota Camry and bullet vehicles were the Ford Mondeo & Freelander.
The IIHS MDB was found to be too severe and was replaced by the AE-MDB.
Final conclusions are not ready yet.

More European force deflection data is needed to proceed with barrier development.
UK and Spain are the only two countries currently contributing to the AE-MDB

development. Since the Japanese fleet is being used for the AE-MDB development, the Japanese have been invited to participate at the next EEVC WG13 meeting in October.

7.2 Interior headform test procedure:

Validation has been performed with 3 vehicles; limitations identified during validation have been addressed in the latest revision of the draft test procedure. EEVC WG13 modified FMVSS 201U to address side impact conditions only and worse case condition.

8 GEOMETRIC STUDIES OF THE FLEET

Mr. Van Ratingen provided an update of the study.
Database contains EEVC, NHTSA NCAP, NHTSA NRD
Japanese vehicle manufacturer database containing 76 records
Compartment and R-point separation are quite consistent internationally independent of wheelbase. Joe Kanianthra would like to study the data further.

Mr. Van Ratingen would like to update the European data prior to distributing this to the committee members. **[ACTION: Mr. Van Ratingen/ACEA]**

9 ACCIDENT STUDIES

Analysis of struck and non-struck side Impact crashes involving MY1990-2001 vehicles was presented by Mr. Kanianthra.
Findings suggest that:

- Females predominated in car to car crashes
- Males predominated in vehicle to narrow object crashes
- Chest and head injuries have increased in recent post MY95 vehicles (ie those that complied with FMVSS214).

10 TEST RESULTS & TEST MATRICES

10.1 Update of current IIHS MDB :

- No changes since May
  - SID IIs front & rear
  - 1500kg
  - 50 km/h perpendicular impact
- IIHS programme to begin towards the end of 2002.

10.2 Analysis of full scale tests using IIHS barrier presented by Mr.Yonezawa

- Struck vehicle was Japanese Honda Accord, dummies were EuroSID1 except for R95 MDB test which used ES2. SUV was Mitsubishi Pajero iO – a small unibody 4WD
- Struck vehicle deformation
  - Belt line IIHS MDB > SUV>MDB
  - H.P. line SUV> IIHS MDB >MDB

  - Side Sill SUV>IIHS MDB =MDB
- Front Dummy Responses
  - HPC, Rib Def & VC IIHS MDB>SUV=MDB
  - Abdominal force IIHS MDB=SUV=MDB
  - Pubic force IIHS MDB>SUV>MDB
- Results represent an isolated example. Further testing with a van type vehicle and one box vehicle anticipated by end March 2003.

10.3 OICA load cell wall data deferred.

10.4 EuroNCAP Pole Impact data deferred

10.5 AE-MDB Camry test

- Preliminary results only, no conclusions at this time
- Mr. Lowne will send TC the revised TRL test matrix. Freelander mass 1620kg, Camry vehicles were all equipped with side mounted airbags. **[ACTION: Mr Lowne].**
- Megane results presented: Preliminary results failed to demonstrate a clear trend when compared with the Camry tests. Results for the Renault Megane were similar for the new AE-MDB and current R95 barrier.
- Mr. Lowne will seek assistance from WG 13 to carrying out an IIHS MDB test into Camry with ES-1. **[ACTION: Mr Lowne].**

11 STATUS OF DRAFT TEST PROCEDURES

11.1 MDB Test Procedure - Member positions

- NHTSA does not believe that the IIHS barrier is the appropriate option at this time
- TC position remains unchanged. TC is pleased with the IIHS protocol and would like to support IHRA recommendations
- Europe remains of the view that a passenger car-like MDB is required.
- Japan's first priority is for passenger car safety, heavier MDB than R95 will need to be considered as intervention for serious injury/ there is a trend towards improving vehicle compatibility. Fleet is gradually changing; principle sales remain strong for small cars but the market penetration of larger vehicles is increasing.
- Australia: Sales figures indicate polarisation of the vehicle fleet to small, large cars and high geometry vehicles.

11.2 Vehicle to Pole Test Procedure

See 11.5

11.3 Side Airbag Out-of-Position Test Procedure

See 11.5

11.4 Interior Headform Procedures

- NHTSA impact zone is larger than EEVC zone, likely to accommodate the unbelted. Since belt use has increased to 78% in the US, the more restrictive target zone specified by the EEVC may be acceptable.
- Mr. Lowne encourages all working group members to review the procedures and comment. Consider also non-struck side and unrestrained conditions. **[ACTION: All Members]**
- Mr. Dalmotas will look at non-struck side injury distributions and report back to the group. **[ACTION: Mr Dalmotas].**
- The working group requested that the Chairman of BWG provide advice on the appropriateness of using a calculated HIC. **[ACTION: Chairman of BWG]. NOTE: request made during BWG meeting 20 September.**

11.5 ESV Report & Responsibilities

- ESV report will consist of 10-12 page paper
- The report to the Steering Committee will consist of a compilation of the previous ESV paper and the new paper with test procedures included in the appendices. This paper to be finalised at the 5-day March 2003 meeting.
- TC will provide IIHS test procedures and OOP test procedure. **[ACTION: Transport Canada]**
- Mr. Lowne will provide an initial draft test proposal for the AE-MDB test after October EEVC meeting. **[ACTION: Mr Lowne]**
- Joe Kanianthra will provide the pole impact procedure based on modified FMVSS 201. Comparison of proposed NHTSA pole test to 201 presented; Impact angle increased to 75 degrees from 90 degrees impact speed increased to 20 mph (32.2 km/h) to account for change in angle. Members tentatively agreed with 254 mm pole diameter impact and there is no objection to the oblique impact. **[ACTION: Mr Kanianthra]**
- The Chairman requested that those responsible for the various parts of the test procedures to submit a 1-2 page summary. Contributions from members are requested by the beginning of November to enable a draft ESV paper to be prepared and circulated before the December meeting. **[ACTION: All Members]**

12 OTHER BUSINESS

ESV deadline has been extended by one week. No further information on afternoon panel at this point. Future of IHRA will be discussed.

13 NEXT MEETING(S)

Geneva December 9,10 (Monday/Tuesday morning). The main discussions will be on finalising the ESV paper reporting on the group's activities and preparing for the 5-day meeting in March 2003. The ESV paper needs to be submitted by February 2003. A draft will be circulated pre-December meeting. Members are asked to review the draft and be prepared to discuss any problems at the Geneva meeting. **[ACTION: Members]**. ES-2

meeting can be scheduled Monday evening. **NOTE: IHRA Compatibility meeting scheduled for 5,6 December in Geneva or London.**

March 2003 Meeting:

March 17th through the 22nd in Los Angeles. Main purpose of meeting is to finalise the report to the IHRA Steering Committee. **[ACTION: TC/ NHTSA will negotiate for sponsor]. NOTE: DTS has offered to host meeting at Seal Beach Yacht Club – TC to follow up.**

ESV Meeting:

ESV is May 19th to 22nd. Possible side impact meeting could be held May 26/27 with a combined side/compatibility meeting on May 28 and compatibility only on May 29/30. **NOTE:** Following the Compatibility meeting at BASt, it was agreed that we try to limit the meetings to 3 days – with 26 May for side, 27 May for a combined meeting and 28 May for compatibility. It was also agreed that the Japanese delegation for both side and compatibility groups should liaise with each other to find a venue for the meetings – possibly Toyota.

14 MEETING ADJOURNED